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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/522,608	03/02/2005	Andreas Lucht	AFK-16214-WO-US	8772

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EXAMINER	
HAUGLAND, SCOTT J	

ART UNIT	PAPER NUMBER
3654	

MAIL DATE	DELIVERY MODE
06/04/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/522,608	LUCHT ET AL.	
	Examiner	Art Unit	
	SCOTT HAUGLAND	3654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 March 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *17-20 and 22-32* is/are pending in the application.

4a) Of the above claim(s) *23-27* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *17-20, 22, and 28-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Claims 23-27 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 4/28/08.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 17-20, 22, and 28-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "friction-increasing component" in claim 17, line 17 and "increasing a level of friction" on lines 18-19 is unclear because it appears to imply a comparison and no basis for the comparison is claimed. It is not clear relative to what the friction is increased.

The language of claim 17, lines 18-19 appears to be inaccurate because there is no friction between the counter-bearing and the spiral toothing since they are not in contact with each other.

The language of claim 17, lines 20-22 appears to be inaccurate because rotation of the carrier shaft in a reverse direction is disclosed as being prevented.

Claim 22, lines 2-3 is unclear or inaccurate because the coefficient of friction depends on the characteristics of both contacting surfaces and other factors.

All claims should be revised carefully to correct all other deficiencies similar to the ones noted above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 17, 22, 28, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fernandez (U.S. Pat. No. 5,005,777) in view of either Burr et al (U.S. Pat. No. 4,217,788) or Buchanan, Jr. (U.S. Pat. No. 5,605,071).

Fernandez discloses a belt shaft retractor having a blocking system (including portions of control system 28) and a tensioning device comprising: a spiral toothing 54 that is meshed with an external toothing 52 of the belt shaft 41, a fixed counter-bearing 16, and an electric motor 26. Friction between brush holder 56 and the spiral toothing increases as pressure between them increases as the spring 58 is compressed.

Fernandez does not disclose that the spiral toothing is not self-locking.

Burr et al teaches providing a spiral toothing 24 that is not self-locking for driving a gear 41. A brake 32 supplies resistance to prevent back-driving of the spiral toothing

24, allowing for worm and gear sets having different gear ratios. The spiral toothing is fixedly disposed on the carrier shaft 23.

Buchanan, Jr. teaches using non-self locking worm gearing in a mechanism which results in locking due to additional friction in components of the mechanism other than the worm gearing (col. 1, line 50 - col. 2, line 1).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the belt retractor of Fernandez with spiral toothing that is not self-locking as taught by Burr et al or Buchanan, Jr. to accommodate other gear ratios or gear sizes or to increase efficiency.

With regard to claim 22, the coefficient of friction of the spring 58 and brush holder are inherently non-linear in some range of pressures.

With regard to claims 28, inherent friction in the motor would provide a holding moment and the motor is capable of being energized to apply a holding moment to prevent rotation of the spiral toothing against at least some loads.

With regard to claim 29, the motor control in 28 adjusts the holding moment generated by the motor as a function of the load on the belt shaft (e.g., note col. 8, lines 30-50).

Claims 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fernandez in view of either Burr et al or Buchanan, Jr. as applied to claim 17 above, and further in view of Kanada et al (U.S. Pat. No. 4,546,933).

Fernandez does not disclose miter-wheel gearing coupling a drive shaft of the electric motor to the spiral toothing.

Kanada et al teaches coupling a motor and spiral toothing in a seat belt retractor via miter-wheel gearing 42, 44.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Fernandez with miter-wheel gearing coupling a drive shaft of the electric motor to the spiral toothing as taught by Kanada et al to permit a more compact arrangement of the motor parallel to the belt shaft.

Claims 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fernandez in view of either Burr et al or Buchanan, Jr. and in view of Kanada et al as applied to claim 20 above, and further in view of Andrei-Alexandru et al (U.S. Pat. No. 4,652,781).

Fernandez does not explicitly disclose that there is a thrust bearing surrounded by a bearing housing between the spiral toothing 54 and gear 20 end of the carrier shaft 18.

Andrei-Alexandru et al teaches mounting a carrier shaft for a spiral toothing in a ball joint bearing (16, 17) in a bearing housing.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Fernandez with a ball joint or cup-shaped bearing in a bearing housing formed by the seat belt retractor frame as taught by Andrei-Alexandru

et al to support the carrier shaft 18 between spiral toothing 54 and gear 20 in a self-aligning manner.

Response to Arguments

Applicants' arguments filed 3/16/10 have been fully considered but they are not persuasive.

Applicants argue that the displaceable shaft toothing in Fernandez makes impossible the claimed function that with a reversal of rotational direction, a blocking of the rotational movement of the spiral toothing takes place. However, Fernandez specifically discloses (e.g., see the last four lines of the abstract) that rotational movement of the spiral toothing 54 is blocked when, by pulling the belt in the withdrawal direction, it is attempted to rotate the spiral toothing in the direction opposite to the direction in which the motor rotates the shaft when retracting the belt. It is noted that this is what the "reversal in a direction of rotation" of claim 1, line 20 refers to based on applicants' disclosure. Driving the motor in applicants' apparatus in the belt unwinding direction 42 would not cause locking of the spiral toothing 19 because it would push spiral toothing away from friction disk 25. The motor is disclosed as driving the spiral toothing in the winding direction to tighten the belt. Fernandez differs from the invention of claim 1, for example, only in the lack of the non-self locking gearing arrangement.

If applicants' position (see last para. of p. 7 of applicants' remarks) is that the gearing in Burr et al is not non-self-locking (i.e., it is self-locking), this is contrary to the disclosure of Burr et al. Note col. 2, lines 11-14. Back-driving capability means that the

worm and gear are not self-locking. The brake in Burr et al provides resistance by making use of friction as in applicants' apparatus. The brake would not be necessary if the gearing were self-locking.

Applicants argues that Buchanan is not related to the object of the invention concerning using external friction to lock otherwise non-self locking worm gearing. However, applicants appear not to have considered the disclosure of Buchanan at col. 1, line 50 - col. 2, line 1.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SCOTT HAUGLAND whose telephone number is

(571)272-6945. The examiner can normally be reached on Mon. - Fri., 10:00 am - 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Q. Nguyen can be reached on (571) 272-6952. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John Q. Nguyen/
Supervisory Patent Examiner, Art Unit 3654

/SJH/